

Intensive Field Sampling Program in Support of a Numerical Toxicant Fate and Transport Model and Risk Assessment: Elliott Bay and Duwamish River, Washington

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Abstract

A field sampling program was undertaken in the winter of 1996–97 to provide the data to support a hydrodynamic and toxicant model and risk assessment on CSO discharges in the Elliott Bay/Duwamish system. This effort sampled conventional parameters, bacteria, trace metals, and organic compounds in matrices including the water column, sediments, CSO discharges, and fish and invertebrate tissues. Water column and sediment samples were taken weekly, with daily water samples taken for the three days following CSO events. CSO samples were taken by automated samplers. Biological samples were obtained through a number of methods, including fishing and trawling.

The hydrodynamic portion of the model was developed through the use of current meters and automated water level, temperature, and salinity recorders.

Numerous specialized sampling and analytical techniques were used. Organic concentrations were too low to detect using our traditional sampling and laboratory methods. Semi-permeable membrane devices were deployed to assess water column concentrations of organic compounds, these samplers estimate the average concentration of organic compounds over time. Low level mercury sampling was also employed to estimate mercury concentrations in the water column.

Sample results are presented in terms of depth, location in the estuary, date, and storm events.